

Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1 (Canceled).

1 2 (Currently Amended). The method of image compression recited in
2 claim † 4, wherein the patterns identified, image components,
3 parameterization of patterns, and lower level numerical encodings are all
4 designed around images belonging to a narrow class of images.

1 3 (Original). The method of image compression recited in claim 2, wherein
2 the narrow class of images are two-dimensional projections of three-
3 dimensional visualizations of data generated by numerical weather
4 simulations.

1 4 (Currently Amended). ~~The A~~ method of image compression ~~recited in~~
2 claim 1, ~~wherein the images are of the class exemplified by 2-D~~
3 ~~projections of 3-D weather model images, said method further~~ comprising
4 the steps of:

5 analyzing an image in terms of perceptual constructs of the human
6 visual system;

7 searching for patterns among analyzed abstractions of the image;
8 describing the image in terms of the perceptual constructs and the
9 patterns found among them;

10 for a given image that is in a same “class” as the image, re-
11 representing the given image by describing the given image as a collection
12 of parameterized versions of patterns prevalent in that same “class” of
13 image;

14 taking a resulting description outside of the context of abstract
15 patterns;

16 looking for redundancies in the description, then re-representing

17 the description so as to eliminate the redundancies and thereby compress
18 the description;

19 re-representing entities patterns with smoothly curved borders and
20 an interior fill that can be parameterized and is either largely derivable
21 from other image data or constant, as curve sequences and parameters
22 required to describe the interior of the pattern; and

23 re-representing entity groups with constant structure that vary only
24 in terms of a spatial parameter as references to the entity pattern group, and
25 a list of the values for the required parameters, each value being for each
26 subsequent entity pattern for the group.

1 5 (Original). The method of image compression recited in claim 4, wherein
2 the spatial parameter is orientation or color.

6 (Canceled).

1 7 (Currently Amended). The method of compression of two-dimensional
2 projections of three-dimensional visualizations of image data recited in
3 claim 6 8, wherein the data are generated by numerical weather
4 simulations.

1 8 (Currently Amended). The A method of compression of two-dimensional
2 projections of three-dimensional visualizations of image data recited in
3 claim 7, wherein the step of dismantling the input image into components
4 includes separation of solid filled contours, transparent, shaded colored
5 two-dimensional projections of three-dimensional iso-surfaces, arrow color
6 and orientations in three-dimensional space, and text and further
7 comprising the steps of:

8 inputting a two-dimensional image;
9 dismantling the two-dimensional image into components, wherein
10 the step of dismantling the input image into components includes
11 separation of solid filled contours, transparent, shaded colored two-

12 dimensional projections of three-dimensional iso-surfaces, arrow color and
13 orientations in three-dimensional space;
14 tracing contours defined by the boundary of the components by
15 fitting parametric curves to the borders of the contours;
16 tracing three-dimensional visualization of the image by fitting
17 curves to the borders of the contours;
18 representing numerical values of curve nodes as distances from one
19 another or a local origin;
20 storing compact border and color description of contours and
21 compact border and color description of iso-surfaces;
22 representing numerical values of arrow colors and orientations as
23 differences; and
24 storing compact color and orientation information for arrows and
25 separated text.

1 9 (Original). The method of compression of two-dimensional projections
2 of three-dimensional visualizations of image data recited in claim 8,
3 further comprising the steps of:

4 receiving the compact border and color description of contours, the
5 compact border and color description of iso-surfaces, the compact color
6 and orientation information for arrows, and text; and

7 decompressing the received information to generate a
8 representation of the original two-dimensional image.

1 10 (Original). The method of compression of two-dimensional projections
2 of three-dimensional visualizations of image data recited in claim 9,
3 wherein the step of decompressing comprises the steps of:

4 accessing a static background image representing geography and
5 drawing the background;

6 accessing a static description of arrow locations and skew, structure
7 and definition of an arrow, and received compact color and orientation
8 information for arrows and drawing arrows;

9 accessing structure and definition of an iso-surface and received
10 compact border and color description of iso-surfaces and drawing iso-
11 surfaces;
12 accessing structure and definition of a contour and received
13 compact border and color descriptions of contours and drawing color
14 contours; and
15 accessing received text and drawing text.

1 11 (New). The method of image compression recited in claim 2, wherein
2 the images are of the class exemplified by 2-D projections of 3-D weather
3 model images